

Media Reporting of Major Accidents:

Concorde AFR 4590 in The Times, The Sun and BBC Online

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IRIA: September 2003



**Glasgow Accident
Analysis Group**

Introduction

"Stories about the accident have appeared in trade journals, newspapers, People Magazine, and on television's 20/20 and McNeil/Lehrer News Hour. Unfortunately, the previous accounts of the problems have been oversimplified, with misleading omissions"

Introduction

"It's important for the media not to speculate about the causes of this accident when so little is known at the moment..."

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"It's important for the media not to speculate about the causes of this accident when so little is known at the moment..."

But I think we can rule out terrorism and possibly also pilot error in this case...

Regulatory Attitudes

"Only the barest factual information is released, because we need to confirm the facts, and to minimise speculation...If a news organisation or journal publishes incorrect information about an investigation or report we will seek corrective action"
(New Zealand Transport Accident Investigation Commission).

"NTSB does not speculate or give out unverified information. With all parties deferring to the Board to release information on the investigation, the team speaks in a coordinated, consistent and orderly manner. Through this procedure, competition for "spin" is thus minimized" (US National Transport. Safety Board).

Previous Work

- Curtis (1995) reviews NY Times index (1978-94):
 - 25 fatal air hijacks/sabotage/military average 53 refs;
 - 160 other airline fatal events averaged 7.2 refs;
 - NYT focuses more on events in U.S. or U.S. carriers;
 - accidents reported more as number of deaths increase.
- Downie and Kaiser (2002):
 - media eager to blame TWA 800 on Islamic terrorists;
 - "If it bleeds, it leads is an accurate description of the reflex of television news directors..."

"As a representative of the people's fundamental interests, of the Chinese Communist Party and of the government facing disasters and accidents, the media help to place the safety and security of the masses in first place...As the mouthpiece of the Party and the people, the media has the duty, the responsibility and the right to report facts about accidents"

(Chinese People's Daily, 8/27/2001).

Air France Concorde (AFR 4590)



- Bureau d'Enquêtes et d'Analyses pour la Sécurité de l'Aviation Civile:
 - Left landing gear tire ran over metal strip on takeoff.
 - tire debris thrown against wing.
 - Debris ruptured fuel tank, major fire under left wing.
 - Crew shut down engine 2, after fire alarm,
 - landing gear will not retract.
 - Aircraft cannot exceed 200 knots, 200 feet.
 - Engine 1 lost thrust, angle of attack increases
 - Thrust engines 3 & 4 fell, aircraft crashed onto hotel.



DOOMED



MES shoot 200ft from the blazing engine of an Air France Concorde yesterday just seconds before it crashed on a Paris hotel, killing 113. A British woman tourist was among the dead. Only a day earlier, a Page One story in The Sun revealed how cracks had been found on the wings of the supersonic jets. Last night, all Concorde flights were suspended. Now the jet's future is in the balance.

PARIS DISASTER - PAGES: 2,3,4,5,6,7,8,9,10 & 11

VOTED
NEWSPAPER
OF THE
YEAR

THE TIMES 20th



WEDNESDAY JULY 26 2000

25

www.the-times.co.uk

Concorde flies to fiery death



Flames flows from the Air France Concorde seconds before it crashed, killing 113 people, yesterday. The photograph was taken by a Hungarian planespotter on holiday in the region

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people were
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corde flights between Heath-
row and New York last night.
One BA Concorde had been
taken out of service after the
cracks alert, but the airline in-
sisted that it would continue to
fly its remaining six.

Jean-Cyril Spinnetta, the Air
France chief executive and
chairman, ruled out any link
between the cracks and the
loss of the aircraft. But it was
unclear how many of the com-
pany executives and celebrities

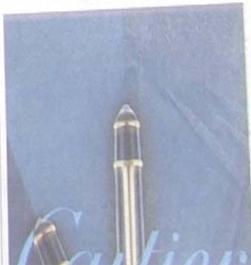
kyo, was among those at the
airport to see the stricken air-
craft dash past on its take-off
run with smoke and flames
belching an its engine.
Other witnesses described
how they realised the aircraft
was in trouble when they

and a number of people inside
were injured.
Last night a pile of black,
smoking debris was all that re-
mained of the airliner and the
hotel, L'Hotel Jospin, the
French Prime Minister, ar-
rived at the scene to see he was

our hotel and it felt like it was
going to go through it - it was
that low."

Nathalie Wycok, an office
worker in a building that
stands just beyond the airport
runway, said the plane tried to
turn around before it leaped
over and plunged to the
ground.

"The pilot realised there was
an enormous problem and
tried to turn around but the
plane fell straight down," she
said. "When it tried to accel-
erate it caught fire behind. It fell
directly on its wing. It wanted
to turn around and, boom, it
just fell. Everything was shak-
ing."



BBC News | EUROPE | Concorde crash kills 113 - Microsoft Internet Explorer

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Address http://news.bbc.co.uk/1/hi/world/europe/851209.stm

BBC HOMEPAGE | WORLD SERVICE | EDUCATION low graphics version | feedback | help

BBC NEWS

You are in: World: Europe
 Tuesday, 25 July, 2000, 19:50 GMT 20:50 UK

Concorde crash kills 113



The plane came down trailing flames behind it

A Concorde jet bound for New York has crashed in a ball of fire shortly after taking off from Paris, killing 113 people.

The Air France aircraft crashed in flames into the Hotelissimo hotel in the town of Gonesse north of the capital,



two minutes after taking-off from Charles de Gaulle airport shortly before 1700 local time (1500GMT).

All 100 passengers - most of them Germans - lost their lives, alongside nine crew members and four people who were killed on the ground.

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- BBC ONE TV NEWS
- WORLD NEWS SUMMARY
- BBC NEWS 24 BULLETIN
- PROGRAMMES GUIDE

BREAKING NEWS
 AUDIO/VIDEO
Concorde crash: Live reports

The Concorde crash

Click here for more news and analysis

Key Stories:

- What went wrong?
- Tyre problems
- "My Concorde drama"

Background:

- French national symbol
- Ageing luxury jet
- Facts and figures

INTERACTIVE GUIDE

- How Concorde Crashed

Front Page
 World

Africa
 Americas
 Asia-Pacific
 Europe
 Middle East
 South Asia

From Our Own Correspondent

Letter From
 America
 UK
 UK Politics
 Business
 Sci/Tech
 Health
 Education
 Entertainment
 Talking Point
 In Depth
 AudioVideo

The BBC's James Robbins
 "A series of massive explosions"
 real 56k

Hugh Schofield reports from the crash site
 "Only a few recognisable pieces of the aircraft remain"
 real 28k

The BBC's David Shukman
 "An aviation legend"
 real 56k

The BBC's Rob Broomby
 "It was for many

Start Mail :: INBO... BBC News ... Mail :: Mess... Talks Talks

Media Sources

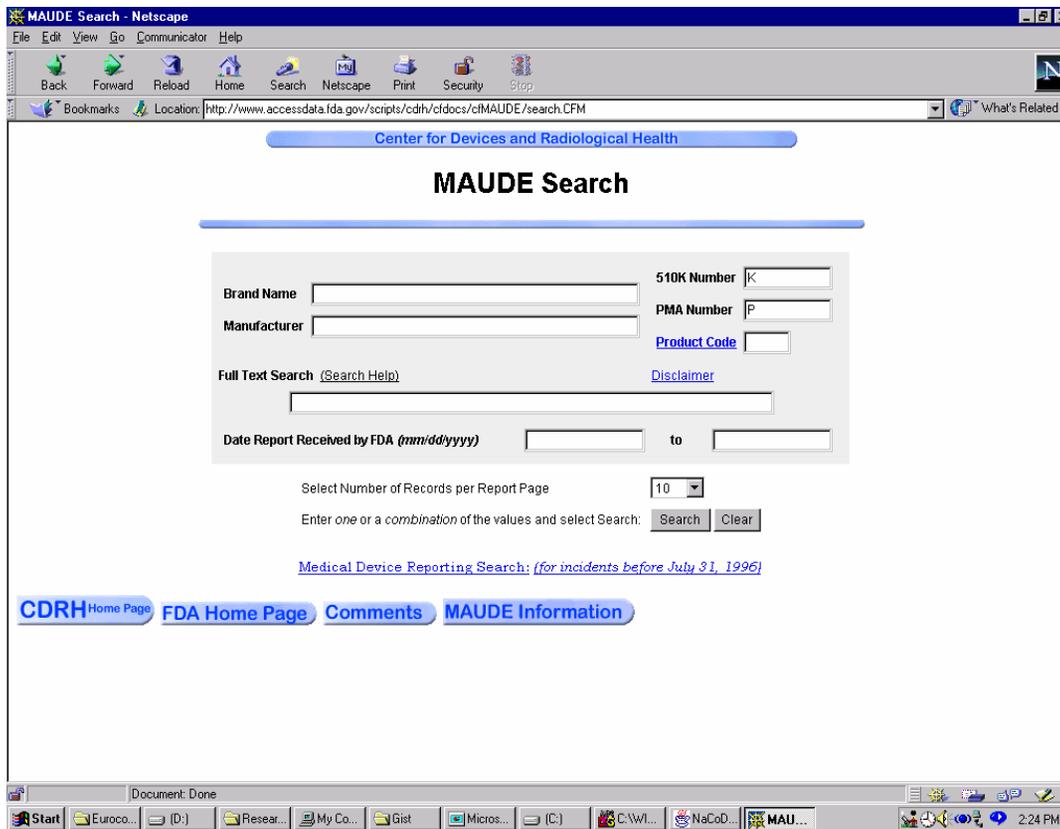


- The Times (of London):
 - 'broadsheet', authoritative, 'in-depth' analysis;
 - daily circulation of 630,000 in August 2002;
 - published by News International.
- The Sun:
 - 'tabloid' with greater 'celebrity' coverage;
 - daily sales of approximately 3,600,000;
 - published by News International (see above).
- BBC-online news service:
 - 2nd year of operation in July 2000;
 - 3,000,000 hits per day;
 - aims "to provide UK content in a market dominated by US material.

Methodological Issues

The screenshot shows the BBC News website in Microsoft Internet Explorer. The main headline is "Concorde crashes near Paris". The article text reads: "A Concorde jet flying to New York has crashed near Paris Charles de Gaulle airport. The BBC correspondent in Paris says French TV is reporting the aircraft crashed into a hotel shortly after take-off." The page includes a search bar, navigation links, and a list of related news items on the right side.

- Internet services:
 - not driven by publication deadlines.
 - Stories edited on-line, 24-hours;
 - which version to analyse?
- Newspapers:
 - driven by delivery deadlines;
 - edition differences (we use Glasgow 'firsts');
 - But even so 'what is a newspaper'?
 - On-line tie-ins and supplements...



Novel Computational Techniques.

Probabilistic information retrieval: see Nir, Michael and Sam's paper (p.51).

Word-sense disambiguation: see Fergus, Joe, Anne and John's paper (p.99).

NaCoDAE - CONVERSER

Library Edit Solve Clire UI Experiment

Interactive Mode Start Step End query Stop

Description:

Dialogue

End of query. One or more case satisfy the threshold criterion, and may be retrieved.
 You may still answer additional questions or change your previous responses,
 or else start a new query by entering a new description above.
 Number of questions asked: 1

Ranked Questions

Answer / Score	Name	Title
"Yes"	atc_ctr_detection	Did ATC/CTLR detect the anomaly?
33	atc_equipment_detection	Did ATC/Equipment detect the anomaly?
28	cockpit_flc_detection	Did Cockpit/FLC detect the anomaly?
9	cockpit_equipment_dete...	Did Cockpit Equipment detect the anomaly?

Ranked Cases

Score	Name	Title
100	case_429994	AN UNTRACKED, UNIDENTED ACR IS NOTED <input type="checkbox"/> WITHIN THE CTLR RPTR'S AREA. A MODE C INTRUDER <input type="checkbox"/>
100	case_429978	AN INTERAGENCY COORD PROB IN ZAN. TFC <input type="checkbox"/> MGMNT UNIT HAD NOT NOTIFIED THE SECTORS THAT STONY MOA WAS HOT. <input type="checkbox"/>
100	case_429837	B737 CREW AT PIT WAS ISSUED TAXI CLRNC <input type="checkbox"/> TO DEICE PAD E BUT TAXIED TO PAD C CONTRARY TO THE GND CTLR'S <input type="checkbox"/> INS...
100	case_429788	TWR LCL CTLR REQUIRED TO CANCEL TKOF <input type="checkbox"/> CLRNC OF A DH8C WHEN OBSERVING AN ARPT VEHICLE DRIVE ONTO THE RW...
100	case_429701	IAD TRACON APCH CTLR OBSERVES 2 F18'S <input type="checkbox"/> DEPART RESTR, BUT NOT RELEASED, AIRSPACE, COMING INTO CONFLICT <input type="checkbox"/>
100	case_427713	CTLR ISSUED A DSCNT CLRNC TO ACFT Z. <input type="checkbox"/> ACFT X READ BACK CLRNC AND STARTED DSCNT, WHICH NOW BECAME TFC FO...
100	case_429111	RPTR CONTENTS THAT THE ROYAL 2 DEP SID <input type="checkbox"/> OFF OF MCI IS CONFUSING FOR THE FLC'S. RPTR ALSO STATES THAT ACFT <input type="checkbox"/>
100	case_429409	RPTR COMPLAINED ABOUT FALSE ALERTS <input type="checkbox"/> GENERATED BY THEIR CONFLICT ALERT SYS, WHICH HE SAYS IS <input type="checkbox"/> INTERFERIN...
100	case_429318	ZTL RADAR CTLR CONCERNED WITH NON COORD <input type="checkbox"/> FLT PATH DEV OF GV FLC ON VISUAL APCH TO HKY ARPT. GV THEN <input type="checkbox"/> OB...
100	case_426916	RPTR CONTENTS THEIR FACILITY DOES NOT <input type="checkbox"/> HAVE THE LATEST PLRS THAT DEPILOT IN COMMAND THEIR AIRSPACE CHAN...

Start Eurocontrol (D:) Research My Compu... Gist Microsoft... (C:) C:WINNT... NaCoDA... 2:20 PM

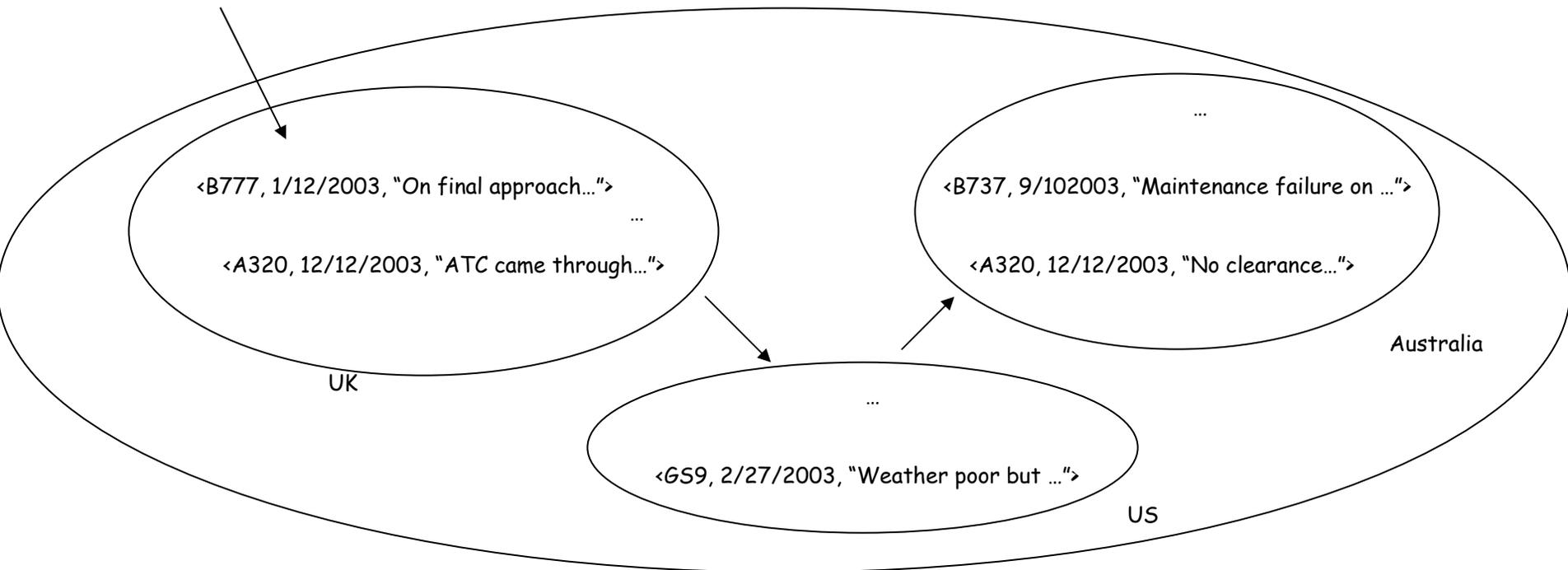
- Conversational case based reasoning:
 - Extended form of US Navy's NACODAE system;
 - Flexible precision & recall.

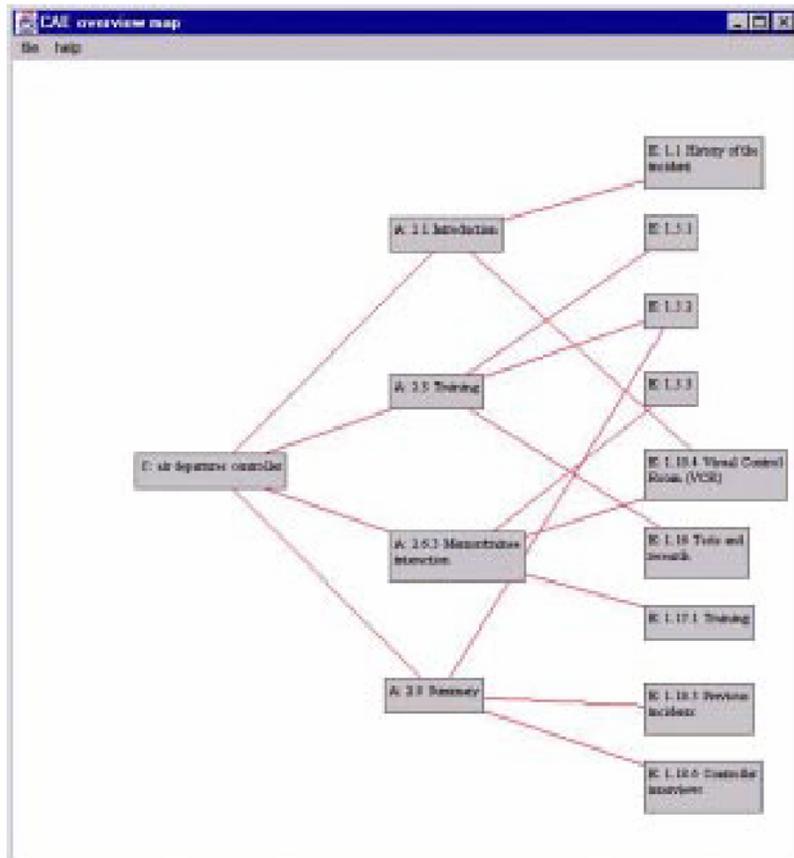
Current Work: Linda and Tuple Spaces

- Leases, $\langle 9/10/2003, \langle A320, ?, ? \rangle \rangle$
- Concurrency
- User defined matching methods
- Integrate with free text retrieval

$\langle A320, ?, ? \rangle$

$\langle ?, ?, \text{match(CRM)} \rangle$





G.A.A.G ACCIDENT ANALYSIS TOOLS: Accident Report Main

File Help

2.6.3 Mentor/trainee interaction

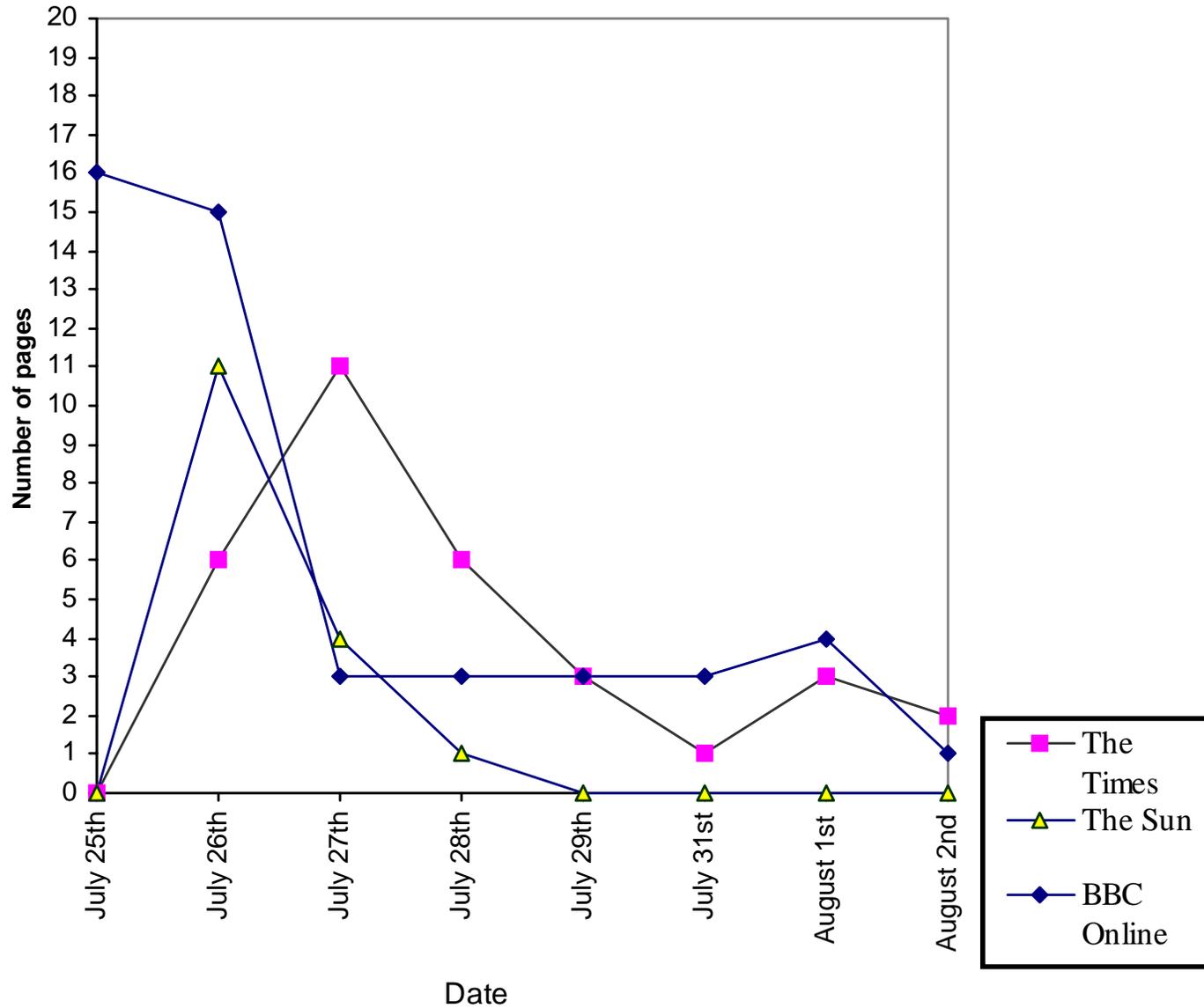
While attention has justifiably been placed on the communication between Air Departures and Air Arrivals, the interaction between the Mentor and trainee also warrants consideration.

The function of the Mentor is not an easy one and the controller acting as Mentor performs a dual role. He or she must fulfil the training function while, at the same time, ensuring the safe and efficient management of the traffic being controlled. On the job training requires that the trainer make some fine judgements as to how much or how little to intervene in what the trainee is doing. If training is progressing satisfactorily, the degree of direct intervention will be gradually reduced over time until the trainee is, to all intents and purposes, working alone (but still being monitored). One difficulty many Mentors experience is that of maintaining vigilance as the trainee becomes more skilled and direct intervention less necessary. The training situation in this incident, though not unique, was somewhat unusual in that the trainee was an experienced controller, having begun work at the unit in 1982 where she remained for eleven years before taking up a non-operational ATC position. At the time of the incident she had been back at the unit as a trainee for approximately one month. The Mentor was therefore faced with the task of monitoring a trainee with whom he had worked previously and who already possessed many years AT experience. This is not a situation conducive to maintaining adequate vigilance. In this situation, Air Departures assumed that the Mentor would pick up on any omissions on her part and also ensure adequate co-ordination with Air Arrivals.

BBC Online Coverage, 25th July 2000

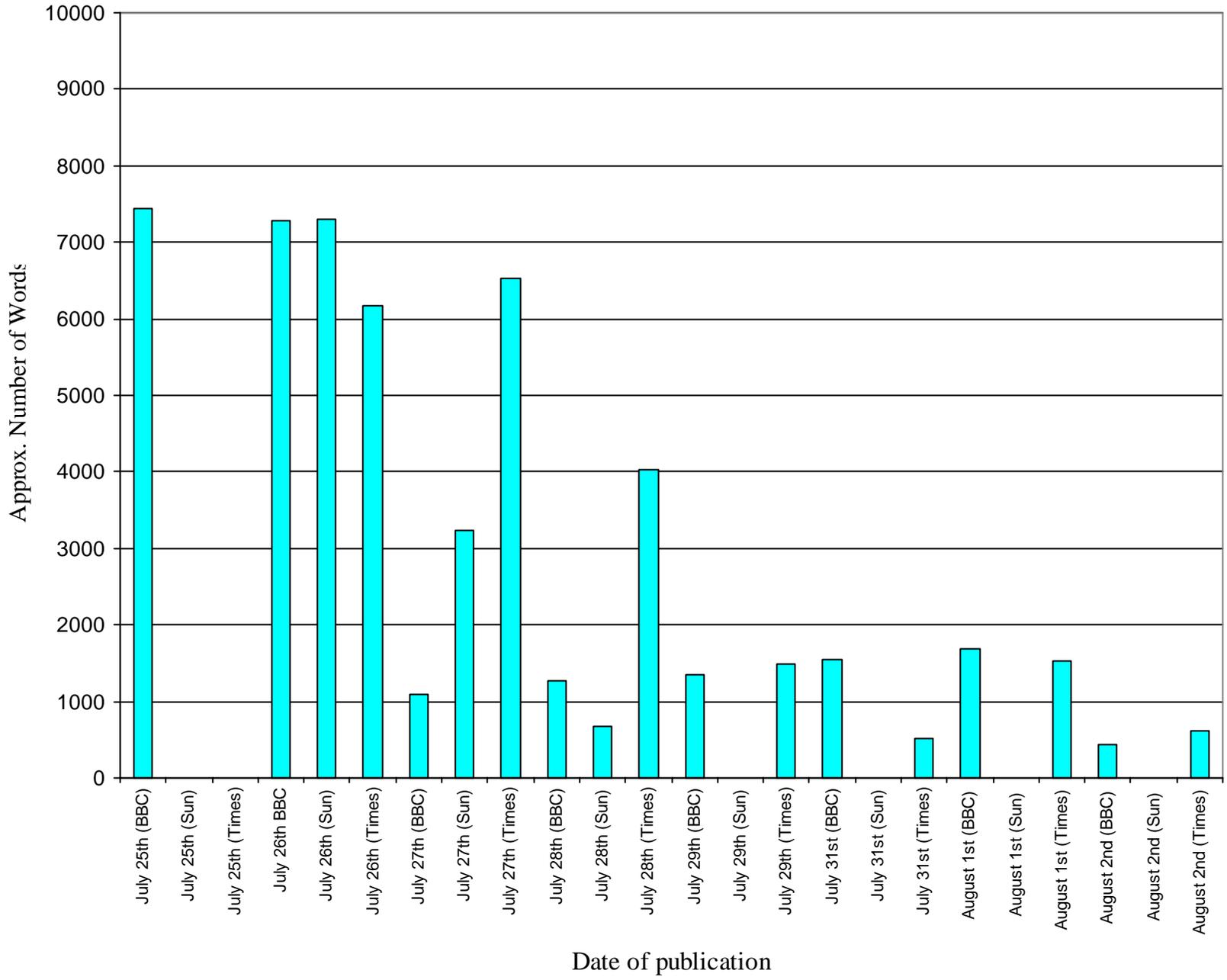
Time Issued (GMT)	Title
01:18	The Cracks in Concorde
15:14	Concorde Crashes Near Paris (1)
15:42	Concorde Crashes Near Paris (2)
15:43	Q&A: Cracks in Concorde
15:50	Concorde Crashes Near Paris (3)
15:53	113 Killed in Concorde crash
15:55	Concorde facts and Figures
16:16	Concorde Crashes Near Paris (4)
16:25	Concorde Paris Crash Kills 113
16:33	Ageing Luxury Jet
17:02	Concorde: Loved by the Rich and Famous
17:15	Concorde 'Still the Safest'
17:56	Witnesses Describe Concorde
18:45	Concorde Crashes Near Paris (5) 'Fireball'
19:50	Concorde Kills 113 (2)
21:42	BA Suspends Concorde Flights
22:05	Germany Stunned by Concorde Crash

Coverage



Approximate Total Words

- No real surprises:
 - BBC On-line.....22,084 words;
 - The Times.....20,931 words;
 - The Sun.....11,198 words.
- But re-use issue in on-line news-services.



Coverage (cm²)

	25 th July			26 th July			27th July			28th July		
	BBC	Sun	Times	BBC	Sun	Times	BBC	Sun	Times	BBC	Sun	Times
Text	4252	0	0	4158	1718	1829	622	760	1934	725	157	1196
Images	878	0	0	1208	5893	4000	40	1571	2146	180	144	1262
Headlines	85	0	0	66	2026	480	12	586	637	16.5	123	334

	29th July			31st July			1 st August			2 nd August		
	BBC	Sun	Times	BBC	Sun	Times	BBC	Sun	Times	BBC	Sun	Times
Text	768	0	444	884	0	154	962	0	452	250	0	194
Images	160	0	661	200	0	0	200	0	0	60	0	0
Headlines	15	0	108	19	0	48	25	0	59	5	0	34

NB:

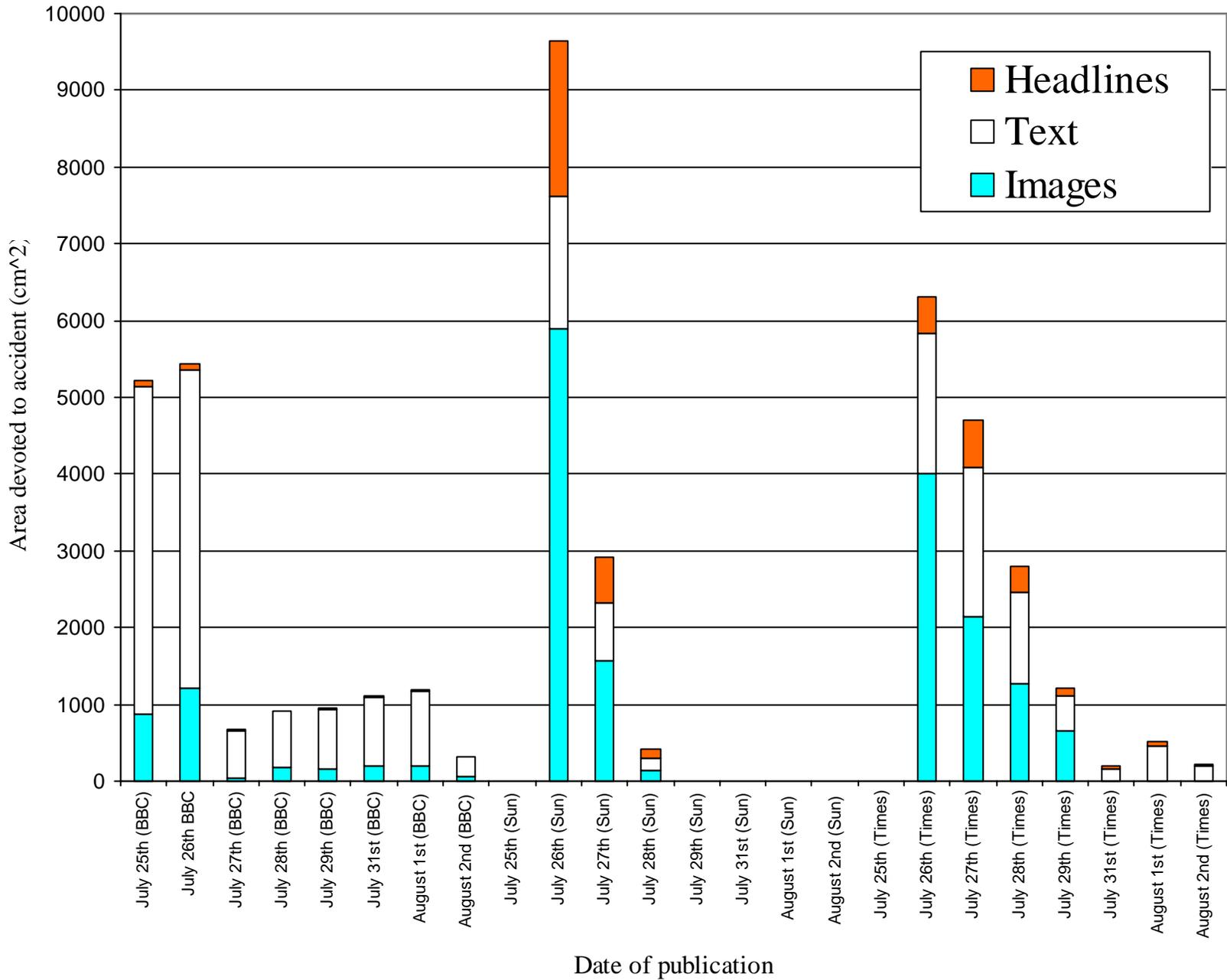
Times total printable area is 1,855 cm², Sun is 945 cm², BBC Online printed version is 416cm².

For smallest point size used, 40cm² text yields approx:

-70 words in BBC Online,

-135 words in 4cm columns of The Times,

-170 words in 5cm column of The Sun.



Speculation?

- Afternoon of 25th: focus on cracks in wings...
- 17:15, BBC Online former Concorde pilot "(cracks) unlikely to have caused the French disaster"
- 19:50, "Head of Air France said Tuesday's crash was linked to an engine problem and apparently had nothing to do with the cracks".
- 21:42 aviation analyst "it is too early to speculate whether the plane has crashed because of this [the cracks]. The crash could have happened for a raft of reasons"

	July 25th	July 26th	July 27th	July 28th	July 29th	July 31st	Aug. 1st	Aug. 2nd
--	-----------	-----------	-----------	-----------	-----------	-----------	----------	----------

The Sun								
Cracks in the wings	✓	✓	✓					
Age related issues (Including Metal fatigue)		✓						
Fan/turbine blade separation		✓		✓				
Uncontrolled release of fuel		✓		✓				
Thrust reverser			✓					

The Times								
Cracks in the wings	✓	✓						
Engine fire		✓						
Fan/turbine blade separation		✓	✓					
Failure in engine fire control system		✓						
Fractured fuel tank		✓	✓			✓	✓	✓
Hydraulic control failure		✓						
Terrorism		✓						
Human error		✓						
Tyre blow-out		✓		✓		✓	✓	✓
Age-related issues (Including Metal fatigue)		✓	✓	✓				
Thrust reverser			✓	✓				
Bird strike				✓				
Fuel line failure				✓		✓		
Maintenance staffing issues				✓				
Runway surveillance (foreign objects)						✓	✓	
After-burner ignition of fuel							✓	

BBC Online								
Cracks in the wings	✓	✓						
Engine fire	✓	✓		✓				
Other cause exacerbated by fuel load		✓						
Tire fragments damage engine				✓	✓	✓		
Tyre blow-out	✓	✓		✓	✓	✓	✓	
Thrust reverser		✓	✓		✓			
Foreign object enters engine		✓						
Fuel leak						✓	✓	
Lack of time for reverser maintenance			✓	✓				

Rhetorical Devices and Speculation

- Times, Sun, BBC journalists don't use any direct speculation on the potential causes.
 - "One possibility is that the fire control system in the damaged engine failed to contain the problem, the fire damaged fuel lines, and power was lost in a second engine as the fire spread. A more remote possibility is that a fragment from a failed engine penetrated the aircraft's fuel tanks in the wing, causing a fire." (The Times, 26th July, p.5).
- Potential causes raised and then immediately contradicted by other arguments.
 - "the possibility of terrorism will be investigated, although Paris Charles de Gaulle has tightened up airport security in the last five years in the face of increased threats." (The Times, 26th July, p.5)
 - "the most common single cause of major air accidents is human error, and the investigation teams will check on-board flight recorders and conversations between the pilot and air traffic controllers to find if there was any confusion in the last moments." (The Times, 26th July, p.5).

Rhetorical Devices and Speculation

- Experts propose causal hypotheses:
 - "Alan Smith, a former Concorde test pilot, said the most likely cause of the accident was a "catastrophic failure" of one of the plane's four engines. "It is possible that a turbine spun out from one engine and impacted upon the one next to it," he said.". (The Times, 26th July, p.1).
 - "John Guntripp, a former air crash investigator, said: "Even with two engines lost, the remaining two engines should have had more than sufficient power capable of taking the engine into a climb so what occurred was a very serious disruption of the aircraft's flying control. Conversations between the pilot and air traffic control will be recorded on one of the black boxes. The on-flight technical record will be checked to make sure that plane had been correctly serviced." (The Times, 26th July, p.3).
- Mixed rhetorical techniques, excerpt classified as expert testimony contradicting possible cause:
 - "BA's chief Concorde pilot, Mike Bannister said..." *These cracks, which the manufacturers have told us are non-safety related cause me no concern. I have been aware of them for a little while and I have complete faith in BA's engineering and in the prudent steps they are taking to address a very small increase in the length of one of the cracks...*" (26 July, p8).

	July 25th	July 26th	July 27th	July 28th	July 29th	July 31st	Aug. 1st	Aug. 2nd
The Times								
Direct causal argument (X is a possible cause...)	0	2	5	1	0	1	0	0
Contradictions or caveats (X is unlikely as a cause...)	0	4	1	2	0	0	0	0
Indirect causal argument (X was a cause in the past...)	0	7	8	6	0	3	1	1
Expert quoted on cause (Y said X is possible cause...)	0	17	10	6	0	3	1	2
The Sun								
Direct causal argument (X is a possible cause...)	0	2	1	1	0	0	0	0
Contradictions or caveats (X is unlikely as a cause...)	0	2	0	1	0	0	0	0
Indirect causal argument (X was a cause in the past...)	0	6	4	0	0	0	0	0
Expert quoted on cause (Y said X is possible cause...)	0	10	7	3	0	0	0	0
BBC Online								
Direct causal argument (X is a possible cause...)	0	0	0	1	1	1	3	0
Contradictions or caveats (X is unlikely as a cause...)	4	5	0	1	0	1	2	0
Indirect causal argument (X was a cause in the past...)	14	7	2	3	5	4	3	0
Expert quoted on cause (Y said X is possible cause...)	13	10	0	5	9	2	4	0

Initial Observations

- BBC Online relies on indirect arguments in hours following the crash.
- Unsurprising, journalists forced to report previous incidents:
 - 14 indirect causal factors on 25th related either to wing cracks or to earlier tire burst on landing
 - contradictions all relate to cracks none to tire burst hypothesis.
- Direct causal hypotheses of 28th-29th July confirmed in BEA report,
 - "The Concorde flight had been delayed for repairs to a thrust reverser, sparking early speculation that faulty work could have contributed to the disaster. But the investigators switched their focus to the burst tyre theory after shredded remains were found on the runway" (BBC, 29th July).

Initial Observations

- Sun contains less speculation on causes of incident than Times:

- fewer causal hypotheses and fewer paragraphs.
- broadsheet forced to speculate on alternate causes to sustain its analysis of the incident.
- Times' profile and reputation secured access to more experts willing to be quoted than The Sun?

- BBC Online has wider range of causal hypotheses than Sun but less than Times:

- Internet site devotes approx. 90 paragraphs to causal hypotheses while Times provides 70;
- BBC Online devoted greater space to a smaller range of causal arguments;
- Reiteration of same hypotheses, as web pages refined during a twenty-four hour period;
- 16:42 "the crash is the first supersonic jet built by Britain and France. It comes a day after British Airways confirmed hairline cracks had been discovered in the wings of seven of the Concorde fleet."
- 17:16 "A spokeswoman for Air France said all the passengers on board were Germans, on a special flight chartered by a German Tour operator. The crash comes a day after British Airways grounded one of its Concorde jets after small cracks were discovered in a number of the planes, although there's no suggestion the problem is linked to the crash".

Initial Observations

- The Sun focuses on fan-blade separation as cause of engine damage & fuel leak.
- Times and BBC Online consider wider range of causes:
 - quickly converge on possibility that a tire blowout fractured a fuel tank;
- Communication through informal channels to end speculation 26th-29th July?
- Times letter, RAF fast-jet pilot identifies afterburners as potential igniter:
 - BEA fails to determine if fuel ignition from short-circuit in electric harness close to main landing gear or by fuel contact with hot sections of engine reheating subsystem.

"(Cyrus Tsui) 54-year-old electronics company boss said: (BA) made the right decision to cancel...With the news about the cracks in the wings of Concorde and with this crash I will have second thoughts about getting on a Concorde ever again." (26 July, p6).

"But a senior executive of another airline said he was "amazed" all the jets were not grounded by the wing cracks. He said "the industry has known about these cracks for some weeks and cannot understand why the Concorde kept flying." (26 July, p8).

"The "microscopic" cracks revealed by The Sun affect 68ft spars running through both wings towards the rear of the jet. *They are not the first problem of the type to affect the airliner - in 1988 cracks were found in bolt holes in a roof panel.* The following year an Air France Concorde flying from Paris to New York was forced to turn back after cracks appeared in a porthole. And in 1994 a report revealed the outer widow panes cracked at twice the speed of sound." (26 July, p8).

"The disaster came just a day after The Sun revealed cracks found in wings had forced British Airways to ground one of its seven Concorde's" (26 July, p2).

"But in recent years it has been dogged by technical troubles - including wing cracks exposed by The Sun on Monday. We revealed that all BA's seven Concorde's had developed the problem - and that Alpha Eco, the eldest, had been grounded because its cracks were growing. The remaining planes were declared safe by experts and continued in service. After our story, Air France confirmed its five Concorde's operating scheduled services were suffering from the same trouble. But it also declared the planes safe to fly." (26 July, p8).

"A Page One story in The Sun revealed how cracks had been found on the wings of the supersonic jets" (26 July, p1).

"It will be weeks before we learn what went wrong. But the disaster-coming just two days after The Sun revealed that cracks had been found in British Airways' Concorde-casts a drak shadow over the aircraft's future" (The Sun Says... 26 July, p10).

"[Joan Collins:] A few days ago when I heard the news about the cracks in the wings I had second thoughts about whether I'd still be flying on Concorde but this has really changed my mind" (26 July, p11).

E: Cracks found in all of BA's Concorde's.

E: Cracks in eldest aircraft were 'growing'.

E: Air France confirms similar technical problems to BA.

C: Accident related to cracks found in the wings?

"Air France president Jean-Cyril Spinetta saw the flames as it took off. He denied the cracks exposed in The Sun were to blame for the horror - although investigators will not be ruling anything out" (26 July, p2).

An Air Industry expert admitted: "Concorde is beginning to show its age. The jets are an average 21-years-old. It was built with technology developed in the 1950s and has been having minor technical problems over the last couple of years..." (26 July, p8).

"Former BA Concorde pilot John Hutchison echoed (Mike Bannister's) views after yesterday's crash. Capt Hutchison who flew Concorde for 15 years said..."it's a very tough plane, it's build in a very robust manner. It's beautiful to fly..." (26 July, p8).

"The doomed Concorde entered service with Air France in October 1980 and had racked up 12,000 flying hours. The airline said its last major overhaul was last September. But it was given a mechanical check just four days ago and no problems were found." (26 July, p2).

"There have also been other dramatic problems [in addition to the cracks]. In 1991 the rudder of a BA Concorde disintegrated at 56,000ft as the plane flew to New York. In 1998, a BA Concorde was forced to turn back to Heathrow after a 4ft by 2ft panel fell off a wing. And the same year an investigation was launched after part of a BA Concorde rudder fell off during flight..." (26 July, p8).

Another expert said last night there had been delays in making spares for Concorde (26 July, p8).

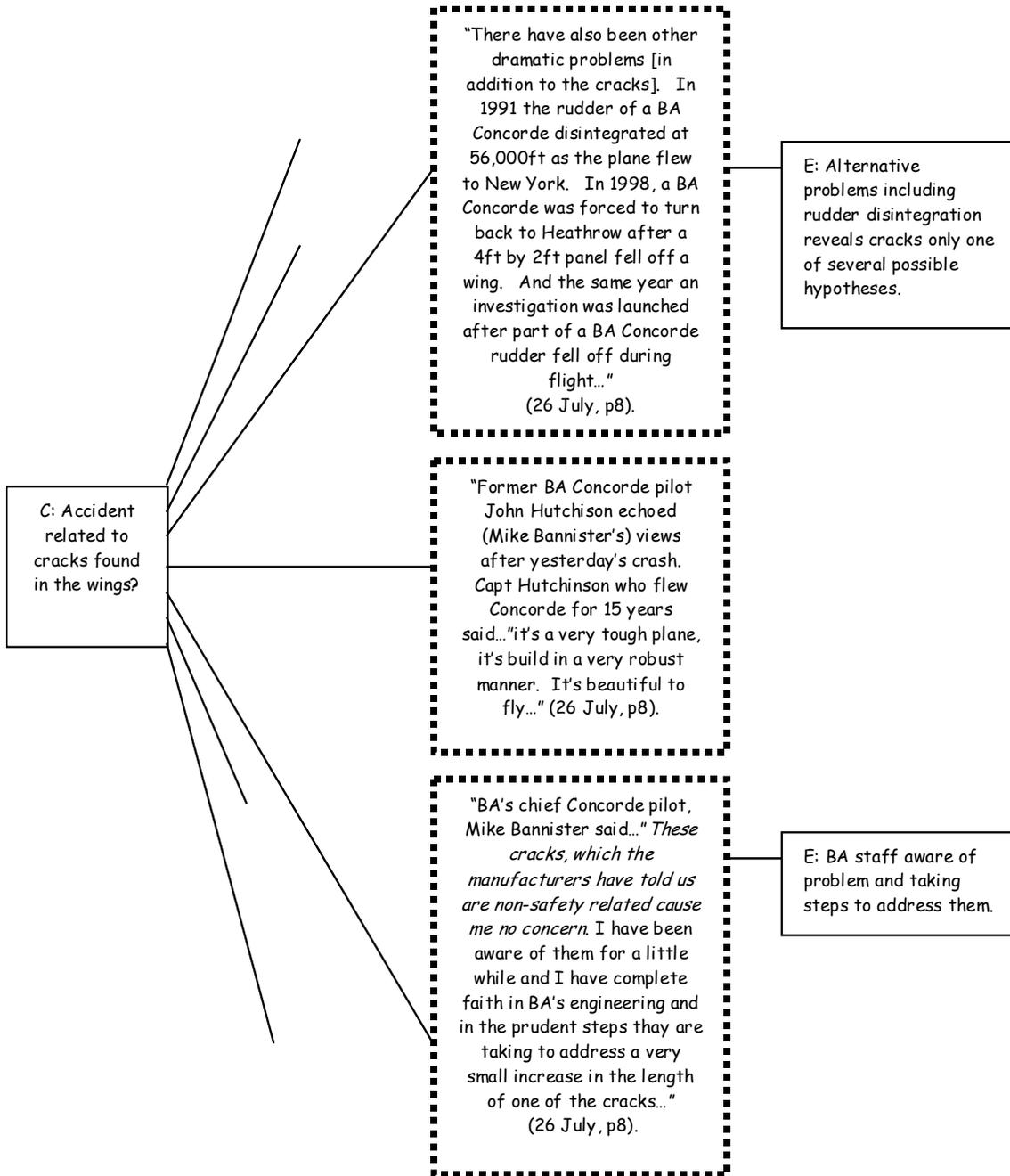
"BA's chief Concorde pilot, Mike Bannister said..." *These cracks, which the manufacturers have told us are non-safety related cause me no concern.* I have been aware of them for a little while and I have complete faith in BA's engineering and in the prudent steps they are taking to address a very small increase in the length of one of the cracks..." (26 July, p8).

E: Last major overhaul last September.

E: Mechanical check on aircraft four days before the accident and no problems were found.

E: Alternative problems including rudder disintegration reveals cracks only one of several possible hypotheses.

E: BA staff aware of problem and taking steps to address them.



C: Accident related to cracks found in the wings?

"Summer 1988 Cracks found in bolt holes in a roof panel. February 1989 Air France Concorde flying from Paris to New York forced to turn back after cracks appear in one of its portholes... August 13, 1994 Report reveals that outer windows on Concorde crack at twice the speed of sound. August 15 1994 Safety checks ordered after four inch cracks found on wing of British Concorde..." (26th July, p.5)

"The investigation team...will be keen to know whether there is any connection between the crash and the recent discovery of small cracks in Concorde's wings. Both British Airways and Air France found the microscopic cracks within the last two months, but no aircraft was grounded until last week when the crack lengthened...both airlines insist that the cracks did not cause any safety fears." (26th July, p.5)

"The possibility of terrorism will be investigated, although Paris Charles de Gaulle has tightened up airport security in the last five years in the face of increased threats." (26th July, p.5)

"[Captain Smith] ruled out an engine stalling: "That is almost impossible because of the way that the plane was designed. Whatever happened yesterday will obviously have to be investigated but I have no doubt that Concorde is a safe plane to fly". (26th July, p.5)

E: Cracks found in BA's and Air France's Concorde's wings

E: Terrorism unlikely given increased security.

E: Previous history of materials problems in Concorde fleet

"Air France said last night that there was no connection between the crash and the "microscopic" cracks, but it has grounded its entire Concorde fleet". (26th July, p.1)

"[Leader] All aircraft are at their maximum vulnerability during take-off, and no evidence yet points to a connection with the recent admission that hair-cracks have developed on all seven of the British Airways Concorde fleet, prompting one to be withdrawn from service, and on four of Air France's six. Although it is too early for firm conclusions, engine fire appears more likely to be the cause" (26th July, p.17)

"Captain Smith said that the tiny cracks found in Concorde's wings "were inspected regularly and are a feature on all planes of a certain age and not just Concorde. It was only because Concorde is so famous that so much fuss is made of them and we can be certain that they did not contribute to the crash." (26th July, p.5)

"Only a failure in more than one engine could have caused Concorde to crash on take-off a former test pilot [Capt. Alan Smith] of the plane said last night...He denied that cracks found in the wings of Concordes could have played a role in the disaster "For a crash like this to happen, there would have to have been a catastrophic failure of at least one of the aircraft's engines, which then impacted on the others, or on the plane's operating controls". (26th July, p.5)

E: Cracks were a known problem and inspected regularly.

E: Human error is most common cause of aviation accidents.

E: Alternative problems including tyre blowing out and turbine failure.

"Jean-Cyril Spinetta, the Air France chief executive and chairman rules out any link between the cracks and the loss of the aircraft. But it was unclear how many of the company executives and celebrities who pay £6,0000 for return Concorde flights between Europe and New York would continue to favour the aircraft." (26th July, p.1)

"Sid Hare, an American tourist who is himself a pilot watched the aircraft's last moments and said:..One of the plane's four engines obviously had a catastrophic failure. It was trailing flames 200ft or 300ft behind the plane. My thought is that one engine failed on take-off and damaged the one next to it. That would account for the huge flames". (26th July, p.1)

"Alan Smith, a former Concorde test pilot, said the most likely cause of the accident was a "catastrophic failure" of one of the plane's four engines. "It is possible that a turbine spun out from one engine and impacted upon the one next to it," he said". (26th July, p.1)

"Engine failure will inevitably be considered a likely cause of the crash, though it is statistically one of the least common causes of airline disasters on large commercial jets, which are powered by four engines and can comfortably fly on two of them, and even on one. But Concorde's engines suffer greater extremes of heat and air pressure than any commercial aircraft in the world. At supersonic speeds, air friction heats the skin to 120C (248F) but by the time the engine has compressed and heated it further temperatures can reach 600C...Concorde's engines sustain these temperatures for more than two hours compared to two minutes on other aircraft" (26th July, p.5)

E:Flames point more directly to engine failure

E: close proximity of engines to each other makes it likely that a failure in one will affect the other.

E: Concorde's engines exposed to greater extremes of heat and pressure for longer than any other commercial aircraft.

"One possibility is that the fire control system in the damaged engine failed to contain the problem, the fire damaged fuel lines, and power was lost in a second engine as the fire spread. A more remote possibility is that a fragment from a failed engine penetrated the aircraft's fuel tanks in the wing, causing a fire." (26th July, p.5)

"John Guntripp, a former air crash investigator, said: "Even with two engines lost, the remaining two engines should have had more than sufficient power capable of taking the engine into a climb so what occurred was a very serious disruption of the aircraft's flying control. Conversations between the pilot and air traffic control will be recorded on one of the black boxes. The on-flight technical record will be checked to make sure that plane had been correctly serviced." (26th July, p.3)

"Sid Hare, an American airline pilot who saw the Concorde take off from Charles de Gaulle airport...continued "I knew it was in trouble, the left side of the engine bank, there are four engines on the Concorde, and the left side number one and number two engines, one of those obviously had a catastrophic failure. And it couldn't gain altitude. He kept trying to get the nose up and gain altitude which eventually caused a stall, the nose pitched straight up in the air, and the aeroplane started rolling over and back sliding down towards the ground". (26th July, p.3)

"Yesterday's crash was Concorde's first fatal accident after almost quarter of a Century of flying high-paying passengers across the Atlantic. Its only previous accident was in 1979 when tyres blew out on landing. There were no casualties". (26th July, p.2)

E: Limited operating hours and higher operating altitudes reduces strain on airframe.

"[Leader] This particular Concorde went into service in 1980, but had fewer than 10,000 hours on the clock. Concordes also cruise at 60,000 feet, nearly twice the height of conventional passenger aircraft, reducing the wear on the air frame from air turbulence" (26th July, p.17)

C: The accident was caused by cracks in the wings

C: The accident was caused by engine failure

C: The accident was caused by tyre problems

C: The accident was caused by thrust reversers

A: On Monday, British Airways confirmed hairline cracks had been discovered in the wings of all seven of its Concorde fleet. One aircraft was grounded after a crack was found to have lengthened. BA was keen to stress the aircraft's exemplary safety record and the fact Concorde clocks up a fraction of the flying hours amassed by sub-sonic planes. (25th July, 01:18)

A: Capt Hutchinson said the tiny cracks which had been found in the wings of British Airways' Concordes - reported on Monday - were unlikely to have caused the French disaster. "... I don't believe the cracks have anything to do with it at all" (25th July, 17:15)

A: But Capt Hutchinson said the Concorde would have taken off with its "full reheat afterburner" engaged and the orange glow and possible flames coming from the back of the aircraft could have confused untrained eyes. Had the reports been correct, however, the captain said the flames would have suggested "catastrophic engine failure". (25th July, 17:15)

A: The Concorde has been considered among the world's safest planes. Its only major scare came in 1979, when a bad landing blew out a plane's tyres. The incident led to a design modification. (25th July, 15:42+15:53+16:25)

A: The flight had been delayed because the pilot had asked for a thrust reverser on the engine, used to slow the aircraft on landing, to be replaced. Air France said the thrust reverser of engine number two, had been reported defective by the captain during the plane's incoming flight from New York..Officials said that although there was no spare part available, a replacement was taken from an out-of-service Concorde, and fitted to the faulty engine in about 30 minutes. Investigators say it was this engine which the captain confirmed had failed, during his brief, final conversation with air traffic controllers. (26th July, 17:44)

A: This follows speculation - now largely discredited - that the crash could have been linked to last-minute repair work (28th July 11:27).

The Concorde flight had been delayed for repairs to a thrust reverser, sparking early speculation that faulty work could have contributed to the disaster. But the investigators switched their focus to the burst tyre theory after shredded remains were found on the runway. (29th July 11:53).

The crash is the first of the supersonic jet built by Britain and France. It comes a day after British Airways confirmed hairline cracks had been discovered in the wings of all seven of its Concorde fleet. . (25th July, 15:42+15:53+16:25)

How big are these cracks? It's important to understand that we're talking about really tiny cracks here and in most cases, cracks that couldn't even be seen by the human eye.
When do the tiny cracks become a problem? When a crack develops, you assess whether the aircraft has to be grounded. If the safety engineers decide it can still safely fly, then they have to assess how quickly the crack has to be fixed because ultimately if it's not fixed it will propagate. But of course airlines frankly wouldn't be inclined to take a risk like that and b, wouldn't be allowed to take a risk like that. (25th July, 15:43)

However, the head of Air France said Tuesday's crash was linked to an engine problem and apparently had nothing to do with the cracks. A BBC correspondent in Paris says the plane was inspected only four days ago, and no problems were found. The Air France plane has been in operation since 1980 and has been subject to a number of inspections recently. (25th July, 19:50)

Concorde's only previous major scare came in 1979, when a bad landing blew out a plane's tyres. The incident led to a design modification. (25th July, 17:15 + 26th July, 00:03)

The French Accident Investigation Bureau (BEA) confirmed that plane had multiple problems during its take off at Charles de Gaulle airport, and said bits of tyre were left behind as it roared down the runway with one wing in flames. ...Details revealed from the preliminary investigations have prompted some experts to speculate that an exploding tyre was the catalyst for the disaster. They say it is possible the exploding tyre damaged the wheel and caused metal shards to fracture fuel lines in the wing. (28th July 11:27).

During the earlier return flight from New York (JFK) on 24 July for this aircraft the captain reported the number 2 engine thrust reversers were not operational. This spare part for the thrust reversers was not available in the parts warehouse. However, given the technical tolerance authorised by the manufacturer, the aircraft could take off again without being repaired. This information was presented to the captain of Flight AF4590. The captain made the decision to have the spare part changed. The spare part was immediately obtained from another spare Concorde (it took 30 minutes to make the necessary repairs). (26th July, 21:23)

The crash comes a day after British Airways grounded one of its Concorde jets after small cracks were discovered in a number of the planes, although there's no suggestion the problem is linked to the crash. (25th July, 15:50+16:16)

Air France confirmed that one of the plane's four engines had caught fire on take-off, minutes before the aircraft came down. Eyewitnesses reported seeing a fireball trailing from an engine on the aircraft's left-side, and that it was not able to gain sufficient altitude before it crashed. (25th July, 19:50)

In a letter to the French aviation authorities sent in 1981, the NTSB said that in June 1979 an Air France Concorde experienced blow-outs of tyres numbers five and six on the left-hand side while taking off from Washington's Dulles Airport. Tyre debris and wheel shrapnel, it said, resulted in damage to number two engine, the puncture of three fuel tanks and the severance of several hydraulic and electrical wires. A large hole was also torn in the skin of the top wing. There was a similar incident a month later.. (28th July 15:35).

Between August 1998 and July 1999 130 Concorde-related incidents were reported, although the Civil Aviation Authority later defended this as being no different to other commercial aircraft. Most recently it was revealed that hairline cracks had been found in the wings of all seven models operated by BA. On Monday, the airline withdrew one after it found the cracks had lengthened. But the other six remained operational. Neither BA nor Air France have shown any inclination to pull their Concordes out of service, all of which were built between 1975 and 1980. (25th July, 16:33)

It emerged on Monday that "microscopic" cracks were detected on the wings of BA's Concorde fleet during maintenance checks - and Air France said it had detected cracks on four of its six Concordes. But several aviation experts have said the cracks were a coincidence and could not be to blame for the crash, which appeared to be due to an engine failure. A spokesman for Rolls-Royce, which developed the Olympus 593 engines along with the French firm Snecma, said: "We are establishing the facts of the incident and until then it would be premature to speculate about the cause." (26th July, 02:58+20:38)

Air France said that one of the plane's four engines had caught fire on takeoff. (26th July, 00.03)

Eyewitnesses said they saw one of the Concorde's engines on fire before it crashed. A spokesman for Rolls-Royce, which developed the Olympus 593 engines along with the French firm Snecma, said: "We are establishing the facts of the incident and until then it would be premature to speculate about the cause." (26th July, 16:08)

Conclusions

"Stories about the Therac-25 have appeared in trade journals, newspapers, People Magazine, and on television's 20/20 and McNeil/Lehrer News Hour. Unfortunately, the previous accounts of the Therac-25 problems have been oversimplified, with misleading omissions" (Leveson and Turner, 1993)

- But:

- Here they rapidly converged on 'correct' causes;
- remember the Chinese People's daily...

Conclusions for Safety Experts

- Media avoid direct speculation.
- They will quote you so be careful;
 - especially at end of a long telephone interviews
- The 'honey trap':
 - Broadsheets need more quotes;
 - you're more likely to give quotes to them?

Graphs test official reports: Text analysis picks apart complex chains of reasoning in inquiry dossiers.

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Graphs test official reports
 Text analysis picks apart complex chains of reasoning in inquiry dossiers.
 15 August 2003
 JOHN WHITEFIELD



Visualizing arguments can help build consensus.
 © Corbis

A new analytical technique tests the conclusions and distils the arguments of complex documents. Designed to scour accident-inquiry reports, it could probe other long, controversial accounts, such as the UK government's Iraq dossier, or the US government's report on the terrorist attacks on 11 September 2001.

"This is a way to check that things aren't being oversimplified or hidden," says its developer, Chris Johnson, an accident analyst at the University of Glasgow, UK. The approach reveals whether or not a report's content support its conclusions.

The analysis produces diagrams of conclusions, analysis and evidence. If, for example, a report blames an accident on human error, a computer search of the whole report pulls out references to this. A reader then follows the trail of argument leading to each conclusion, and pinpoints the evidence for or against it.

In this way, Johnson has recently found inconsistencies in the 80-page document discussing the breakdown of London's computerized ambulance dispatch system. It blamed technical failure brought on by lack of testing. But Johnson's diagrams pick up references to the system's extensive testing throughout the report.

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Irony...

- Study increased media interest in our work on accident investigation.

• I got more calls asking me to speculate on causes of accidents.

• 8(

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Software can detect text inconsistencies
 By Charles Choi
 UPI Science News

NEW YORK, Aug. 27 (UPI) -- Scottish researchers have developed software based on Internet search engines that could help investigators rifle quickly through complex documents involving such controversial issues as nuclear power, genetically modified organisms, airplane disasters, health care policy and weapons of mass destruction.

"These documents are often so long and complex that my techniques are intended to help identify or sketch the arguments that they contain, in a way that makes it easy to identify omissions or contradictions," lead researcher Chris Johnson, a computer scientist at the University of Glasgow, told United Press International.

For example, Johnson said his group has been contacted about the current inquiry erupting in the United Kingdom over the death of government weapons adviser David Kelly, who wrote the initial report on weapons of

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Does this really look like me?



Fish accidents?

The Sunday Telegraph, September 7th, 2003, page 33.

Conclusions for Regulators

- Need to be sensitive to media needs:
 - Internet, cable, newspapers different deadlines;
 - But all seem interested to avoid speculation.
- Are all incidents the same?
 - in some cases the blanket ban is justified...
 - in other cases political pressure determines disclosure?
- Interim report reduces speculation;
 - Political pressure from the UK forces this?
- We need more studies in this area (fear & ignorance).

Conclusions for Regulators

- Did the media handling kill Concorde?

